

WHAT IS CLAIMED IS:

1. A method of supporting a network layer protocol in a network element of a wireless communication network, comprising:
 - 2 receiving, by the network element, a first packet of a receive packet stream;
 - 4 ascertaining whether the first packet conforms to a first predetermined network layer protocol; and
 - 6 forwarding, at least in part in response to ascertaining that the first packet conforms to the first predetermined protocol, at least a portion of the first packet to a router, the router being configured to support the first predetermined protocol.
2. The method of claim 1, wherein the ascertaining involves examining a protocol identifier encapsulated within the first packet, the protocol identifier uniquely identifying a protocol to which the first packet conforms.
3. The method of claim 1, wherein the entire first packet is forwarded to the router.
4. The method of claim 1, wherein less than the entire first packet is forwarded to the router.
5. The method of claim 1, further comprising processing the first packet after the ascertaining and before the forwarding.
6. The method of claim 5, wherein the processing includes applying a decompression process to the first packet.

7. The method of claim 6, wherein the decompression process is applied in
2 accordance with an Internet Protocol version 4 (IPv4) Van Jacobson decompression
process.

8. The method of claim 6, wherein the decompression process is applied in
2 accordance with an Internet Protocol version 6 (IPv6) decompression process.

9. The method of claim 1, wherein the receive packet stream comprises a Point-
2 to-Point Protocol (PPP) stream.

10. The method of claim 1, wherein the network element includes substantially
2 no native support for the first predetermined protocol.

11. The method of claim 1, wherein the network element includes one of
2 compression support and decompression support for the first predetermined protocol.

12. The method of claim 1, wherein the network element is configured to
2 natively support a second predetermined protocol.

13. The method of claim 12, wherein the second predetermined protocol
2 comprises one of Internet Protocol, Version 4 (IPv4) and Internet Protocol, Version 6
(IPv6).

14. The method of claim 1, wherein the network element comprises a packet
2 data serving node (PDSN).

15. The method of claim 1, wherein the receive packet stream originates at a
2 terminal device, the terminal device comprising one of a mobile station and a personal
computer (PC).

16. The method of claim 1, further comprising:
2 receiving, by the network element, a second packet forwarded by the router;
4 ascertaining whether the second packet conforms to the first predetermined
network layer protocol; and
6 transmitting, in response to ascertaining that the second packet conforms to the
first predetermined protocol, at least a portion of the second packet in a transmit packet
stream.

17. The method of claim 16, wherein ascertaining whether the second packet
2 conforms to the first predetermined network layer protocol involves routing the
received second packet to a corresponding instance in the network element.

4

18. The method of claim 16, wherein the transmit packet stream is broadcast to
2 a terminal device, the terminal device comprising one of a mobile station and a
personal computer (PC).

19. A network element for supporting a network layer protocol in a wireless
2 communication network, comprising:
a first receiver to receive a first packet of a receive packet stream;

4 a demultiplexer operatively coupled to the first receiver and configured to
ascertain whether the first packet conforms to a first predetermined network layer
6 protocol; and
 a forwarding mechanism operatively coupled to the demultiplexer and
8 configured to forward, at least in part in response to the demultiplexer ascertaining that
the first packet conforms to the first predetermined protocol, at least a portion of the
10 first packet to a router, the router being configured to support the first predetermined
protocol.

20. The network element of claim 19, further comprising a processing
2 mechanism operatively coupled to the demultiplexer and the forwarding mechanism,
the processing mechanism being configured to process the first packet after the
4 ascertaining and before the forwarding.

21. The network element of claim 19, wherein the processing mechanism is
2 configured to apply a decompression process to the first packet.

22. The network element of claim 19, further comprising:
2 a second receiver to receive, by the network element, a second packet
transmitted by the router;
4 a multiplexer operatively coupled to the second receiver and configured to
ascertain whether the second packet conforms to the first predetermined network layer
6 protocol; and

a transmitter operatively coupled to the multiplexer and configured to forward,
8 in response to ascertaining that the second packet conforms to the first predetermined
protocol, at least a portion of the second packet in a transmit packet stream.

23. The network element of claim 22, further comprising a second processing
2 mechanism operatively coupled to the second receiver and the multiplexer, the second
processing mechanism being configured to process the second packet after the
4 receiving by the second receiver and before the ascertaining by the multiplexer.

24. The network element of claim 23, wherein the second processing
2 mechanism is configured to apply a compression process to the second packet.

25. The network element of claim 19, wherein the network element includes
2 substantially no native support for the first predetermined protocol.

26. The network element of claim 19, wherein the network element is
2 configured to natively support a second predetermined protocol.

27. The network element of claim 26, wherein the second predetermined
2 protocol comprises one of Internet Protocol, Version 4 (IPv4) and Internet Protocol,
Version 6 (IPv6).

28. A computer-readable medium encoded with a plurality of processor-
2 executable instructions for:
receiving, by a network element, a first packet of a receive packet stream;

4 ascertaining whether the first packet conforms to a first predetermined network
layer protocol; and

6 forwarding, at least in part in response to ascertaining that the first packet
conforms to the first predetermined protocol, at least a portion of the first packet to a
8 router, the router being configured to support the first predetermined protocol.

29. The computer-readable medium of claim 28, wherein the ascertaining
2 comprises examining a protocol identifier encapsulated within the first packet, the
protocol identifier uniquely identifying a protocol to which the first packet conforms.

30. The computer-readable medium of claim 28, further comprising processor-
2 executable instructions for:
receiving, by the network element, a second packet forwarded by the router;
4 ascertaining whether the second packet conforms to the first predetermined
network layer protocol; and
6 transmitting, in response to ascertaining that the second packet conforms to the
first predetermined protocol, at least a portion of the second packet in a transmit packet
8 stream.